

THAT WHICH IS CLAIMED:

1. An isolated nucleic acid molecule selected from the group consisting of:

5 (a) a polynucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:2;

(b) a polynucleotide sequence comprising at least 20 contiguous nucleotide bases of SEQ ID NO:1 or SEQ ID NO:3;

10 (c) a polynucleotide sequence comprising the cDNA insert of Patent Deposit No. PTA-1688, wherein said sequence encodes a polypeptide with PR1-C10-like activity;

(d) a polynucleotide sequence having at least 85% sequence identity to SEQ ID NO:1 or SEQ ID NO:3, wherein said sequence is at least 25 nucleotides in length;

15 (e) a polynucleotide sequence which hybridizes under high stringency conditions to a polynucleotide having the sequence set forth in SEQ ID NO:1;

(f) a polynucleotide sequence comprising the sequence set forth in SEQ ID NO:1 or SEQ ID NO:3; and,

20 (g) a polynucleotide sequence complementary to a polynucleotide of a), b), c), d), e), or f).

2. A vector comprising at least one nucleic acid molecule of claim 1.

3. A recombinant expression cassette comprising a nucleic acid molecule of claim 1 operably linked to a promoter.

25 4. A host cell comprising the vector of claim 2.

5. A transgenic plant cell comprising the vector of claim 2.

6. A transgenic plant comprising the vector of claim 2.

7. The transgenic plant of claim 6, wherein the plant is selected from the group consisting of maize, soybean, sunflower, sorghum, canola, wheat, alfalfa, cotton,
5 rice, barley, and millet.

8. Transformed seed from the transgenic plant of claim 6.

9. An isolated polypeptide comprising an amino acid sequence selected from
10 the group consisting of:

(a) a polypeptide comprising an amino acid sequence having at least 25 contiguous amino acids of SEQ ID NO:2;

(b) a polypeptide comprising the amino acid sequence encoded by the cDNA insert of the plasmid deposited as Patent Deposit No. PTA-1688;

15 (c) a polypeptide having at least 70% sequence identity to SEQ ID NO:2, wherein said polypeptide retains PR1-C10-like activity;

(d) a polypeptide comprising the amino acid sequence encoded by a nucleic acid sequence of SEQ ID NO:1 or SEQ ID NO:3;

(e) a polypeptide sequence comprising the amino acid sequence set
20 forth in SEQ ID NO: 2; and,

(f) a polypeptide sequence encoded by a nucleotide sequence that hybridizes under stringent conditions to a nucleotide sequence set forth in SEQ ID NO:1 or SEQ ID NO:3, and said polypeptide retains PR1-C10-like activity.

25 10. A method of modulating the level of PR1-C10 polypeptide in a plant, comprising:

(a) introducing into a plant cell a recombinant expression cassette comprising a nucleotide sequence operably linked to a promoter, wherein said nucleotide sequence is selected from the group consisting of:

i) a polynucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:2;

ii) a polynucleotide sequence comprising at least 20 contiguous nucleotide bases of SEQ ID NO:1 or SEQ ID NO:3;

5 iii) a polynucleotide sequence comprising the cDNA insert of Patent Deposit No. PTA-1688, wherein said sequence encodes a polypeptide with PR1-C10-like activity;

10 iv) a polynucleotide sequence having at least 85% sequence identity to SEQ ID NO:1 or SEQ ID NO:3, wherein said sequence is at least 25 nucleotides in length;

v) a polynucleotide sequence which hybridizes under high stringency conditions to a polynucleotide having the sequence set forth in SEQ ID NO:1;

vi) a polynucleotide sequence comprising the sequence set forth in SEQ ID NO:1 or SEQ ID NO:3; and,

15 vii) a polynucleotide sequence complementary to a polynucleotide of a), b), c), d), e), or f);

(b) culturing the plant cell under plant growing conditions; and,

(c) inducing expression of said polynucleotide for a time sufficient to modulate the level of the PR1-C10 polypeptide in said plant cell.

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11. The method of claim 10, wherein the plant is selected from maize, soybean, sunflower, sorghum, canola, wheat, alfalfa, cotton, rice, barley, and millet.

25 12. The method of claim 11, wherein the level of the PR1-C10 polypeptide is increased.

13. The method of claim 11, wherein the level of the PR1-C10 polypeptide is decreased.